

REMARKS

Applicants thank the Examiner for the thorough examination given the present application.

Status of the Claims

Claims 1-7 and 9-18 are pending in the above-identified application. Claims 1-7 are currently withdrawn from consideration. Claims 9-18 stand ready for further action on the merits. Claim 10 has been amended to place the claim in better form for prosecution. Thus, no new matter has been added. Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues under 35 U.S.C. § 112, second paragraph

Claims 10-17 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner states, “The claimed limitation of ‘wherein the InP buffer layer is grown on the InGaP buffer layer or InGaAsP buffer layer’, as recited in claim 10, is unclear as to the structural relationship between and the InP buffer layer and the claimed compound semiconductor, since the InP buffer layer was not recited earlier in the claim.” Applicants respectfully traverse in view of the amended claims.

Claim 10 has been amended herein in order to overcome this issue. As such, Applicants respectfully request that the rejection be withdrawn.

Issues under 35 U.S.C. § 102(e)

Claims 9 and 18 are rejected under 35 U.S.C. § 102(e) as being anticipated by Fujii '586 (US 6,771,586). Applicants respectfully traverse. Reconsideration and withdrawal of the outstanding rejection are respectfully requested based on the following considerations.

Legal Standard for Determining Anticipation

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art." *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Distinctions over the Cited Reference

The Examiner asserts that the layer 9 in Figure 1 of Fujii '586 corresponds to the InP crystal of the present invention. However, in Figure 1, the layer 9 is not InP. Fujii '586 states layer 9 is Al_{0.7}GaAs (col. 4, line 60). If the Examiner intended to refer to layer 19, layer 19 is

also not InP. Rather, layer 19 is $(\text{Al}_{0.72}\text{Ga})\text{InP}$ (col. 5, line 5). Thus, Fujii '586 fails to disclose the InP crystal of the present invention.

Since only $(\text{Al}_{0.72}\text{Ga})\text{InP}$ is disclosed in Fujii '586, each rate of Ga and In is indefinite. Accordingly, it is impossible to determine the lattice constant of $(\text{Al}_{0.72}\text{Ga})\text{InP}$ therefrom. Since the component having the greatest lattice constant is InP in an Al-Ga-In-P system, the lattice constant of $(\text{Al}_{0.72}\text{Ga})\text{InP}$ may be greatly different from the lattice constant of InP.

Moreover, the $(\text{Al}_{0.72}\text{Ga})\text{InP}$ layer 19 is placed between the GaInP layer 18 and the GaInP layer 20. Each rate of Ga in these layers 18 and 20 is indefinite. Each rate of In in these layers 18 and 20 is also indefinite. However, since the GaAs layer 21 is placed on the layer 20, the lattice constant of the layer 20 is likely very close to the lattice constant of GaAs. Based on this assumption, it is possible to assume that the lattice constant of the $(\text{Al}_{0.72}\text{Ga})\text{InP}$ layer 19 is also very close to the lattice constant of GaAs.

As discussed above, layer 19 of Fujii '586 is not InP, and the lattice constant of layer 19 is not closer to the lattice constant of InP than the lattice constant of GaAs. On the other hand, the layer of the present invention, which would correspond to layer 19 of Fujii '586, is InP crystal or a compound semiconductor crystal having a lattice constant closer to the lattice constant of InP than the lattice constant of GaAs.

Accordingly, the present invention is not anticipated by Fujii '586 since the reference does not teach or provide for each of the limitations recited in the pending claims.

Issues under 35 U.S.C. §103(a)

Claims 10-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujii '586. Applicants respectfully traverse. Reconsideration and withdrawal of the outstanding rejection are respectfully requested based on the following considerations.

Legal Standard for Determining Prima Facie Obviousness

MPEP 2141 sets forth the guidelines in determining obviousness. First, the Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors are:

- (a) determining the scope and content of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating any evidence of secondary considerations.

Graham v. John Deere, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

Second, the Examiner has to provide some rationale for determining obviousness. MPEP 2143 sets forth some rationales that were established in the recent decision of *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). Exemplary rationales that may support a conclusion of obviousness include:

- (a) combining prior art elements according to known methods to yield predictable results;
- (b) simple substitution of one known element for another to obtain predictable results;
- (c) use of known technique to improve similar devices (methods, or products) in the same way;

(d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(e) “obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success

(f) known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(g) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

As the MPEP directs, all claim limitations must be considered in view of the cited prior art in order to establish a *prima facie* case of obviousness. *See* MPEP 2143.03.

Distinctions over the Cited Reference

As discussed above, Fujii ‘586 fails to disclose the InP crystal of the present invention, which is also recited in independent claim 10.

To establish a *prima facie* case of obviousness of a claimed invention, all of the claim limitations must be disclosed by the cited references. As discussed above, Fujii ‘586 fail to disclose all of the claim limitations of the pending claims. Accordingly, the reference does not render the present invention obvious.

Furthermore, the cited reference or the knowledge in the art provides no reason or rationale that would allow one of ordinary skill in the art to arrive at the present invention as claimed. Therefore, a *prima facie* case of obviousness has not been established, and withdrawal of the outstanding rejection is respectfully requested. Any contentions of the USPTO to the contrary must be reconsidered at present.

Conclusion

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of the pending claims 9-18 is allowable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad M. Rink, Reg. No. 58,258, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

By  _____

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